ORDER NO. SD8002-1669

Service Manual

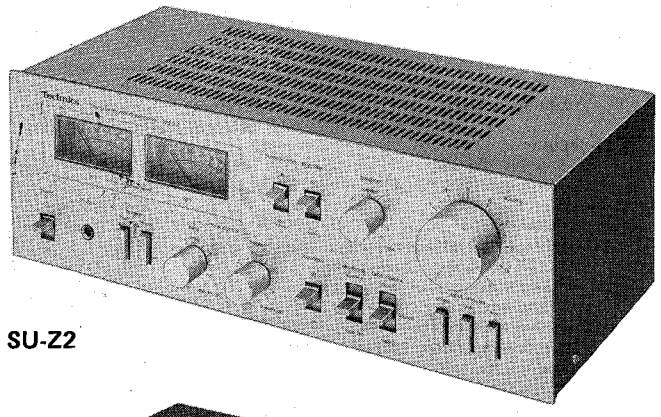
Stereo Integrated Amplifier

SU-Z2

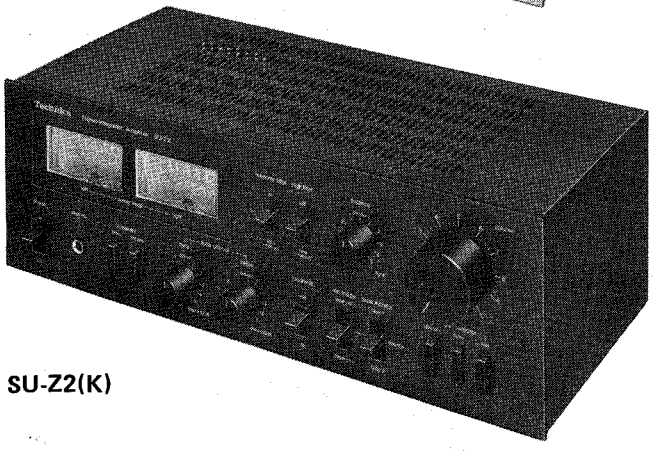
〔E〕,〔EG〕,〔XGH〕,〔XGF〕,
〔EB〕,〔XE〕,〔XAL〕,〔XA〕

SU-Z2 (K)

〔E〕,〔EG〕,〔XGH〕,
〔EB〕,〔XE〕



SU-Z2



SU-Z2(K)

* The colors c. r and black.
The black type mod. th (K) in the
Service Manual.

Areas

* [E] and [EG] are available in European and Scandinavia.
* [XGH] is available in Holland.
* [XGF] is available in France.
* [EB] is available in Belgium.
* [XE] is available in United Kingdom.
* [XAL] is available in Australia.
* [XA] is available in Asia, Latin America, Middle East and Africa.

TECHNICAL SPECIFICATIONS Specifications are subject to change without notice for further improvement.

(DIN 45 500)

AMPLIFIER SECTION

20 Hz~20 kHz continuous power output	
both channels driven	2 × 35W (4Ω) 2 × 35W (8Ω)
40 Hz~16 kHz continuous power output	
both channels driven	2 × 35W (4Ω) 2 × 35W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 40W (4Ω) 2 × 38W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.05% (4Ω) 0.03% (8Ω)
rated power at 40 Hz~16 kHz	0.05% (4Ω) 0.03% (8Ω)
rated power at 1 kHz	0.03% (4Ω) 0.03% (8Ω)
half power at 20 Hz~20 kHz	0.025% (8Ω)
half power at 1 kHz	0.015% (8Ω)
−26 dB power at 1 kHz	0.15% (4Ω)
50 mW power at 1 kHz	0.2% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.05%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.03%
Power bandwidth	
both channels driven, −3 dB (THD 0.05%)	10 Hz~25 kHz (4Ω) 10 Hz~30 kHz (8Ω)
Residual hum and noise	0.65 mV
Damping factor	25 (4Ω), 50 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, AUX	150 mV/27kΩ
TAPE 1 REC/PLAY	180 mV/33kΩ
TAPE 2	150 mV/27kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV

S/N		
rated power (4Ω)	**PHONO**	71 dB (IHF, A: 71 dB)
	TUNER, AUX	85 dB (IHF, A: 95 dB)
−26 dB power (4Ω)	**PHONO**	63 dB
	TUNER, AUX	65 dB
50 mW power (4Ω)	**PHONO**	62 dB
	TUNER, AUX	64 dB
Frequency response		
PHONO		RIAA standard curve ±1.0 dB (30 Hz~15 kHz)
TUNER, AUX, TAPE		10 Hz~50 kHz (−1 dB) ±0.5 dB (20 Hz~20 kHz)
Tone controls		
BASS		50 Hz, +10 dB~ −10 dB
TREBLE		20 kHz, +10 dB~ −10 dB
Subsonic filter		30 Hz, −6 dB/oct.
High-cut filter		7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB)		50 Hz, +9 dB
Output voltage and impedance		
REC OUT		150 mV
REC/PLAY		30 mV/82kΩ
Channel balance, AUX 250 Hz~6,300 Hz		±1.5 dB
Channel separation, AUX 1 kHz		50 dB
Headphones output level and impedance		390 mV/330Ω
Load impedance		
MAIN or REMOTE		4Ω~16Ω
MAIN and REMOTE		8Ω~16Ω

GENERAL

Power consumption	415W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	410 × 142 × 219 mm (16-5/32" × 5-19/32" × 8-5/8")
Weight	5.7 kg (12.6 lb.)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

SU-Z2

TECHNISCHE DATEN (DIN 45 500)

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

VERSTÄRKERTEIL

Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz	
beide Kanäle ausgesteuert	2 × 35W (4 Ω)
	2 × 35W (8 Ω)
Dauerton-Ausgangsleistung bei 40 Hz ~ 16 kHz	
beide Kanäle ausgesteuert	2 × 35W (4 Ω)
	2 × 35W (8 Ω)
Dauerton-Ausgangsleistung bei 1 kHz	
beide Kanäle ausgesteuert	2 × 40W (4 Ω)
	2 × 38W (8 Ω)
Gesamtklirrfaktor	
Nennleistung bei 20 Hz ~ 20 kHz	0,05% (4 Ω)
	0,03% (8 Ω)
Nennleistung bei 40 Hz ~ 16 kHz	0,05% (4 Ω)
	0,03% (8 Ω)
Nennleistung bei 1 kHz	0,03% (4 Ω)
	0,03% (8 Ω)
halbe Nennleistung bei 20 Hz ~ 20 kHz	0,025% (8 Ω)
halbe Nennleistung bei 1 kHz	0,015% (8 Ω)
−26 dB Leistung bei 1 kHz	0,15% (4 Ω)
50 mW Leistung bei 1 kHz	0,2% (4 Ω)
Intermodulationsfaktor	
Nennleistung bei 250 Hz: 8 kHz = 4:1, 4 Ω	0,05%
Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω	0,03%
Leistungsbandbreite	
beide Kanäle ausgesteuert bei −3 dB (THD 0,05%)	
	10 Hz ~ 25 kHz (4 Ω)
	10 Hz ~ 30 kHz (8 Ω)
Restbrumm und Geräusch	0,65 mV
Dämpfungsfaktor	25 (4 Ω), 50 (8 Ω)
Eingangsempfindlichkeit und -impedanz	
Phono	2.5 mV/47 kΩ
Tuner, Aux	150 mV/27 kΩ
Tape 1 Aufnahme/Wiedergabe (TAPE 1 REC/PLAY)	180 mV/33 kΩ
Tape 2	150 mV/27 kΩ
Maximale TA-Eingangsspannung (1 kHz, eff.)	150 mV

Geräuschabstand		
Nennleistung (4 Ω)	**Phono**	71 dB(nach IHF, A: 71 dB)
	Tuner,Aux	85 dB(nach IHF, A: 95 dB)
−26 dB Leistung (4 Ω)	**Phono**	63 dB
	Tuner, Aux	65 dB
50 mW Leistung (4 Ω)	**Phono**	62 dB
	Tuner, Aux	64 dB
Frequenzgang		
Phono		RIAA-Standardkurve ±1,0 dB (30 Hz ~ 15 kHz)
Tuner Aux, Tape		10 Hz ~ 50 kHz(−1 dB) ±0,5 dB (20 Hz ~ 20 kHz)
Klangregler		
Baßregler (BASS)		50 Hz, +10 dB ~ −10 dB
Höhenregler (TREBLE)		20 kHz, +10 dB ~ −10 dB
Tiefenfilter		30 Hz, −6 dB/Okt.
Rauschfilter		7 kHz, −6 dB/Okt.
Gehörrichtige Lautstärkekorrektur (Loudness)		
(bei −30 dB Ausgangsleistung)		50 Hz, +9 dB
Ausgangsspannung und -impedanz		
Aufnahmeausgang (REC OUT)		150 mV
Aufnahme/Wiedergabe (REC/PLAY)		30 mV/82 kΩ
Kanalabweichung (Aux, 250 Hz ~ 6300 Hz)		±1,5 dB
Übersprechdämpfung (Aux, 1 kHz)		50 dB
Kopfhörerpegel und -impedanz		390 mV/330 Ω
Lautsprecherimpedanz	**MAIN oder REMOTE**	4 Ω ~ 16 Ω
	MAIN und REMOTE	8 Ω ~ 16 Ω

ALLEGEMEINE DATEN

Leistungsaufnahme	415 W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	410 × 142 × 219 mm
Gewicht	5,7 kg

CARACTERISTIQUES TECHNIQUES (DIN 45 500)

Sujet à changement sans préaris.

SECTION AMPLIFICATEUR

Puissance de sortie continue de 20 Hz~20 kHz,	
les deux canaux en circuit	2 × 35W (4Ω)
	2 × 35W (8Ω)
Puissance de sortie continue de 40 Hz~16 kHz,	
les deux canaux en circuit	2 × 35W (4Ω)
	2 × 35W (8Ω)
Puissance de sortie continue à 1 kHz	
les deux canaux en circuit	2 × 40W (4Ω)
	2 × 38W (8Ω)
Distorsion harmonique totale	
à puissance nominale (20 Hz~20 kHz)	0,05% (4Ω)
	0,03% (8Ω)
à puissance nominale (40 Hz~16 kHz)	0,05% (4Ω)
	0,03% (8Ω)
à puissance nominale (1 kHz)	0,03% (4Ω)
	0,03% (8Ω)
à demi-puissance (20 Hz~20 kHz)	0,025% (8Ω)
à demi-puissance (1 kHz)	0,015% (8Ω)
puissance de −26 dB à 1 kHz	0,15% (4Ω)
puissance de 50 mW à 1 kHz	0,2% (4Ω)
Distorsion d'intermodulation	
à puissance nominale à 250 Hz: 8 kHz=4:1, 4Ω	0,05%
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,03%
Réponse de fréquences	
les deux canaux en circuit, −3 dB (THD 0,05%)	
	10 Hz~25 kHz (4Ω)
	10 Hz~30 kHz (8Ω)
Bruit et ronflement résiduels	0,65 mV
Coefficient d'amortissement	25 (4Ω), 50 (8Ω)
Sensibilité et impédance d'entrée	
PHONO	2,5 mV/47kΩ
SYNTONISATEUR, AUX (TUNER, AUX)	150 mV/27kΩ
BANDE 1, ENREGISTREMENT/LECTURE (TAPE 1 REC/PLAY)	180 mV/33kΩ
BANDE 2 (TAPE 2)	150 mV/27kΩ
PHONO (tension d'entrée maximum, 1 kHz RMS)	150 mV
Signal/Bruit	
à puissance nominale (4Ω)	
PHONO	71 dB (IHF, A: 71 dB)
SYNTONISATEUR, AUX (TUNER, AUX)	85 dB (IHF, A: 95 dB)
puissance de −26 dB (4Ω)	
PHONO	63 dB
SYNTONISATEUR, AUX (TUNER, AUX)	65 dB
puissance de 50 mW (4Ω)	
PHONO	62 dB
SYNTONISATEUR, AUX (TUNER, AUX)	64 dB
Réponse de fréquence	
PHONO	Courbe nominale RIAA ±1,0 dB (30 Hz~15 kHz)
SYNTONISATEUR, AUX, BANDE (TUNER, AUX, TAPE)	10 Hz~50 kHz (−1 dB) ±0,5 dB (20 Hz~20 kHz)
Réglage de la tonalité	
BASSES (BASS)	50 Hz, +10 dB~ −10 dB
AIGUS (TREBLE)	20 kHz, +10 dB~ −10 dB
Filtre subsonique	30 Hz, −6 dB/oct.
Filtre coupe-hauts	7 kHz, −6 dB/oct.
Compensateur physiologique (volume à −30 dB)	50 Hz, +9 dB
Tension de sortie et impédance	
SORTIE ENREGISTREMENT (REC OUT)	150 mV
ENREGISTREMENT/LECTURE (REC/PLAY)	30 mV/82kΩ
Equilibrage des canaux, AUX 250 Hz~6 300 Hz	±1,5 dB
Séparation des canaux, AUX 1 kHz	50 dB
Niveau de sortie des casques et impédance	390 mV/330Ω
Impédance de charge	
PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)	4Ω~16Ω
PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)	8Ω~16Ω

DIVERS

Consommation	415W
Alimentation	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	410 × 142 × 219 mm (16-5/32" × 5-19/32" × 8-5/8")
Poids	5,7 kg (12,6 lb.)

■ CONTENTS

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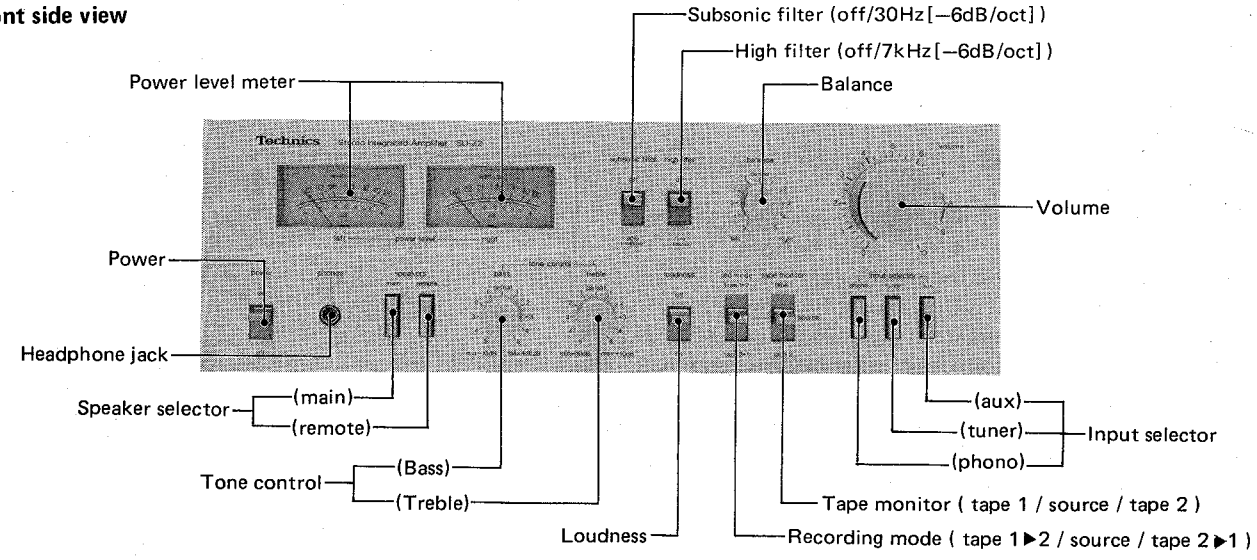
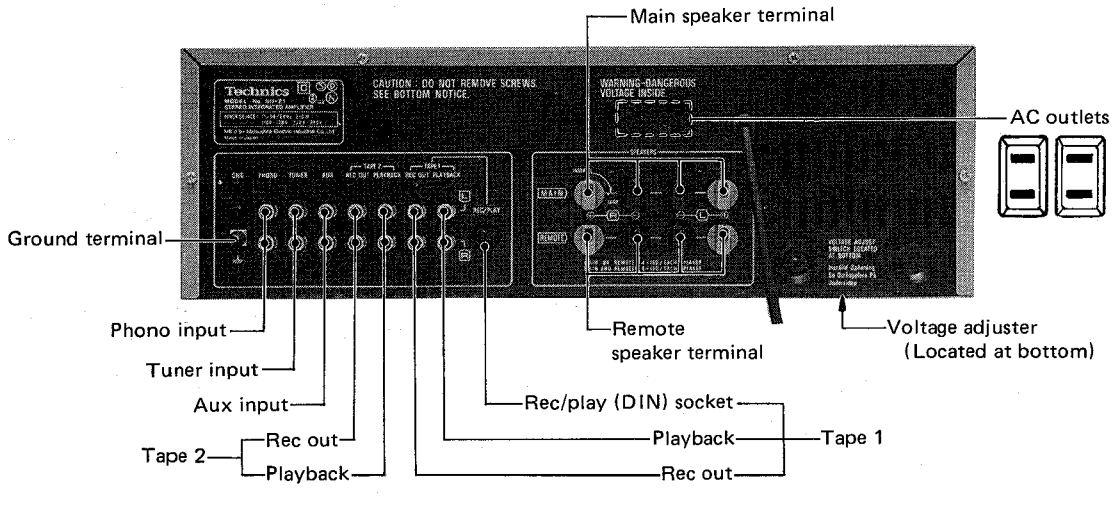
■ LOCATION OF CONTROLS

● **Front side view**

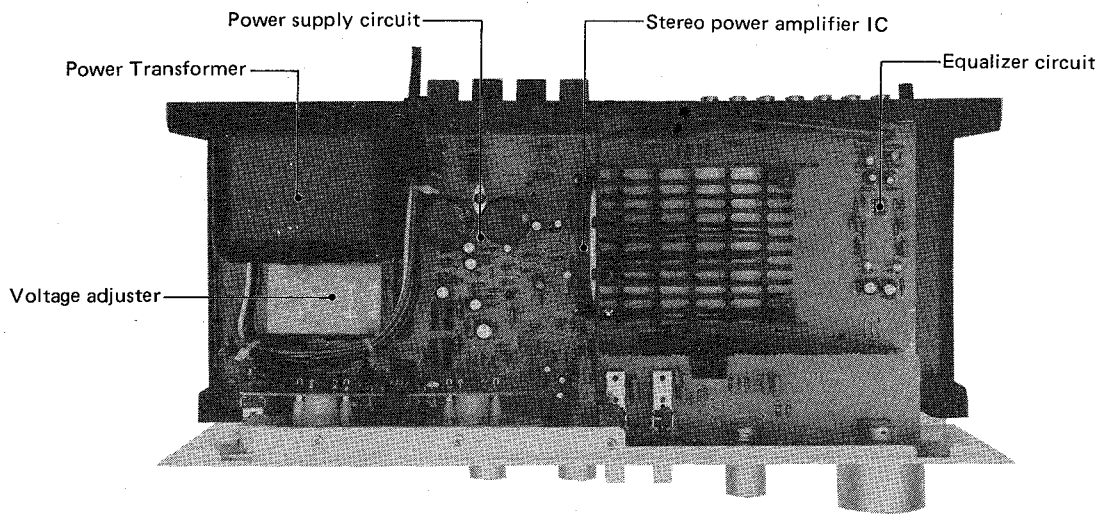


● **Rear side view**



AC outlets are not equipped on units some areas.

● **Inside view**



■ HOW TO REMOVE P.C.B.

1. Remove the 6 cabinet setscrews (❶ ~ ❻ in Fig. 1).
2. Lift up the cabinet, slightly pulling its both ends outwards as illustrated in Fig. 1.
3. Remove the 5 setscrews on the back of the set (❼ ~ ⓫ in Fig. 2).
4. Remove the setscrew (⓬ in Fig. 2) which fastens the printed board in the set.
5. Remove the 2 setscrews (⓭ , ⓯ in Fig. 3) which fasten the chassis and panel on the front panel bottom.
6. Setscrew ⓬ is stopped on the chassis lug.
   Since the solder of the P.C.B. is caught by the lug, hold the heat sink, and pull out the front panel in the direction of Ⓑ while lifting it up in the direction of Ⓐ as shown in Fig. 3.
7. Thus, the P.C.B. can be removed from the chassis.
   In this case, cut off the lead wire clamp (SHR301) as needed.
8. When installing the circuit board, take care not to damage the knobs and switches (power switch in particular).

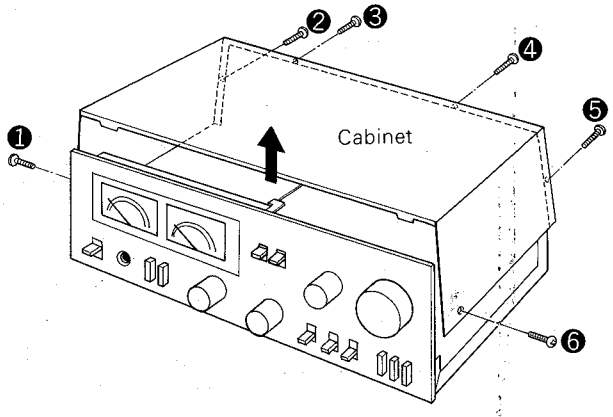


Fig. 1

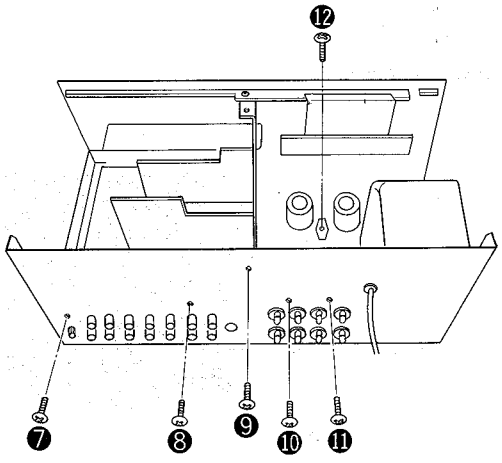


Fig. 2

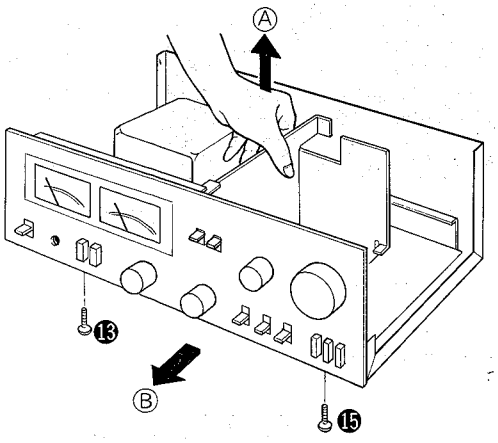


Fig. 3

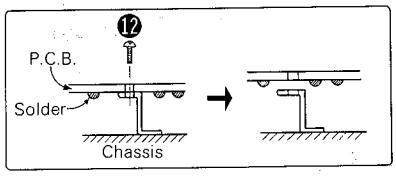


Fig. 4

■ REPLACEMENT PARTS LIST ····· Cabinet and Chassis Parts

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. [K] -marked parts are used for black type only, while O -marked parts are for silver type only.
4. Parts other than [K] -and O -marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No. : SU-Z2 (K)

Ref. No.		Part No.	Part Name & Description
		CABINET and CHASSIS PARTS	
1	O	SYW255	Panel, Front Ass'y
1	K	SYW255–1	Panel, Front Ass'y (Black)
2		SHG6067	Rubber, Front Panel
3		SHS6111	Fiber, Front Panel
4	O	SBC267	Button, Push Switches
4	K	SBC267–1	Button, Push Switches (Black)
5	O	SBN909–2	Knob, Bass, Treble & Balance
5	K	SBN909–1	Knob, Bass, Treble & Balance (Black)
6	O	SBN911–2	Knob, Volume
6	K	SBN911–1	Knob, Volume (Black)
7		SHS3253	Fiber
8	O	SHR5089	Cover, Lever Switch Knobs
8	K	SHR5089–1	Cover, Lever Switch Knobs (Black)
9	O	SBD31	Knob, Lever Switches
9	K	SBD31–1	Knob, Lever Switches (Black)
10		XCJ6P21B–A1	Jack, Headphones
11	O	SKC390H1	Cabinet
11	K	SKC390B1	Cabinet (Black)
12		SJF4813	Terminal, Speaker
13		SJF3045N	Terminal, Input
14		SMX331	Cover, Fuse
15		SJT347	Holder, Fuse
16		SHG6105	Rubber, Chassis (Voltage Adjuster)
17		SHG677	Rubber, Chassis
18		SKL245	Foot
19 [E]		SGP2230B	Rear Panel
19 [XE]		SGP2230D	Rear Panel
19 [XA]		SGP2230–1B	Rear Panel
19 [XAL]		SGPUZ2L	Rear Panel (SGP2230–2B with Name Plate SGT21550)
19 [EG, EB, XGH, XGF]		SGPUZ2K	Rear Panel (SGP2230B with Name Plate SGT21510)
20 [XE]		SFSR5N4	Bushing, AC Cord
20 [XAL]		SHR131	Bushing, AC Cord
20 [E, EG, EB, XA, XGH, XGF]		SFSR4N4	Bushing, AC Cord
21 [XE]	⚠	**QFC1205M**	AC Cord, Power Source
21 [XA]	⚠	SJA111	AC Cord, Power Source (W/Plug)
21 [XAL]	⚠	**QFC1207M**	AC Cord, Power Source (W/Plug)
21 [E, EG, EB, XGH, XGF]	⚠	**SJA88**	AC Cord, Power Source (W/Plug)

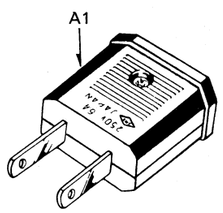
Ref. No.		Part No.	Part Name & Description
22		SMN1707	Bracket, Volume Shaft
23		SSM155N–1N	Meter (with/Meter Lamp)
24 [XA] only	⚠	SJSA66–2	Socket, AC Outlet (Use for [XA] only)
25 [XA] only	⚠	SMX335	Cover, AC Outlet (Use for [XA] only)
		NUTS, SCREWS and WASHERS	
51		**XNS8**	Nut, M8 (Volume, Balance, Bass, Treble)
52		**XWV8**	Washer, ϕ8
53		**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8 (Front Panel)
54 [XAL] only		**XWC3B**	Washer, External Toothed Lock, ϕ3
55		**XSN3+6S**	Screw, ⊕ 3 x 6 (Power Switch)
56		**XWA3B**	Washer, Spring, ϕ3
58		SHD3X23F	Screw, M3 (Voltage Adjuster)
59		**XTB4+10BFZ**	Screw, Tapping, ⊕ 4 x 10 (Power Transformer)
60		**XWC3B**	Washer, External Toothed Lock, ϕ3
61		**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8
62	O	**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8 (Cabinet)
62	K	**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8 (Cabinet) Black
		ACCESSORIES	
A1 [XA] only	⚠	SJP5213–1	Plug Adaptor, AC Power Source
A2 [XA] only	⚠	SJP5215	Plug Adaptor, AC Power Source
		PACKING PARTS	
P1 [XAL] only		SPP649	Polyethylene Bag
P1 [Other Areas]		SPP659	Polyethylene Bag
P2 [XAL] only		SPS2559–1	Pad, Left Side
P2 [Other Areas]		SPS2559	Pad, Left Side
P3 [XAL] only		SPS2561–1	Pad, Right Side
P3 [Other Areas]		SPS2561–2	Pad, Right Side
P4		SPS2711	Pad, Corner
P5 [XAL]	O	SPG2437	Carton Box
P5 [XGF]	O	SPG2439	Carton Box
P5 [E, EG, EB, XA, XGH, XE]	O	SPG2435	Carton Box
P5	K	SPG2455	Carton Box
P6 [XE, XAL]		SQF10367	Instructions Book, Printed Matter
P6 [E, EG, EB, XGH XGF]		SQF10365	Instructions Book, Printed Matter
P6 [XA]		SQF10511	Instructions Book, Printed Matter

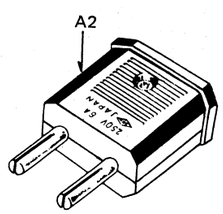
Areas

* [E] and [EG] are available in European and Scandinavia.
* [XGH] is available in Holland.
* [XGF] is available in France.
* [EB] is available in Belgium.
* [XE] is available in United Kingdom.
* [XAL] is available in Australia.
* [XA] is available in Asia, Latin America, Middle East and Africa.

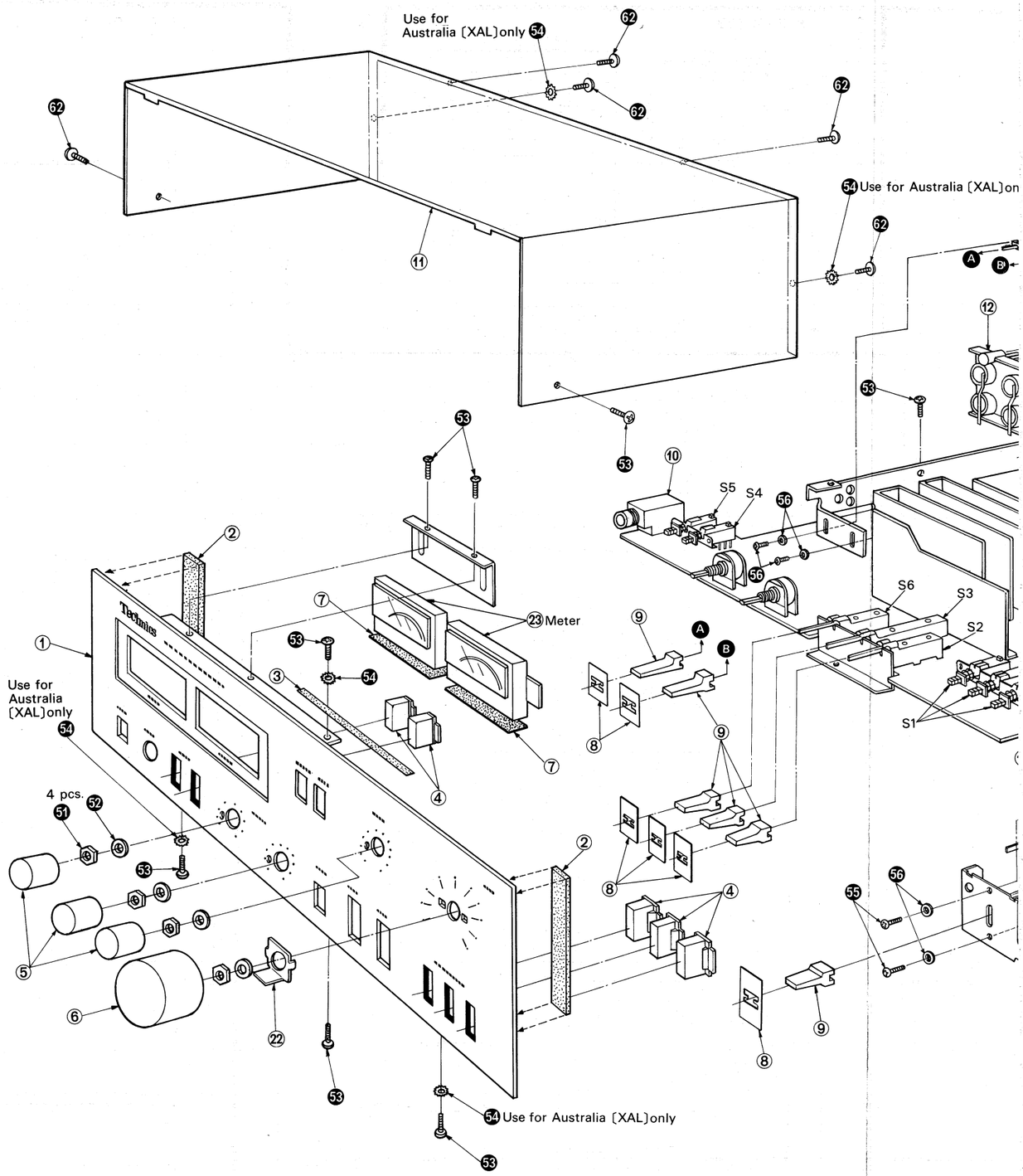
■ ACCESSORIES

* A1 and A2 for [XA] only.





■ EXPLODED VIEWS



■ EXPLODED VIEWS

e used for both black

ns specify the area.
ed for all areas.

2 (K)

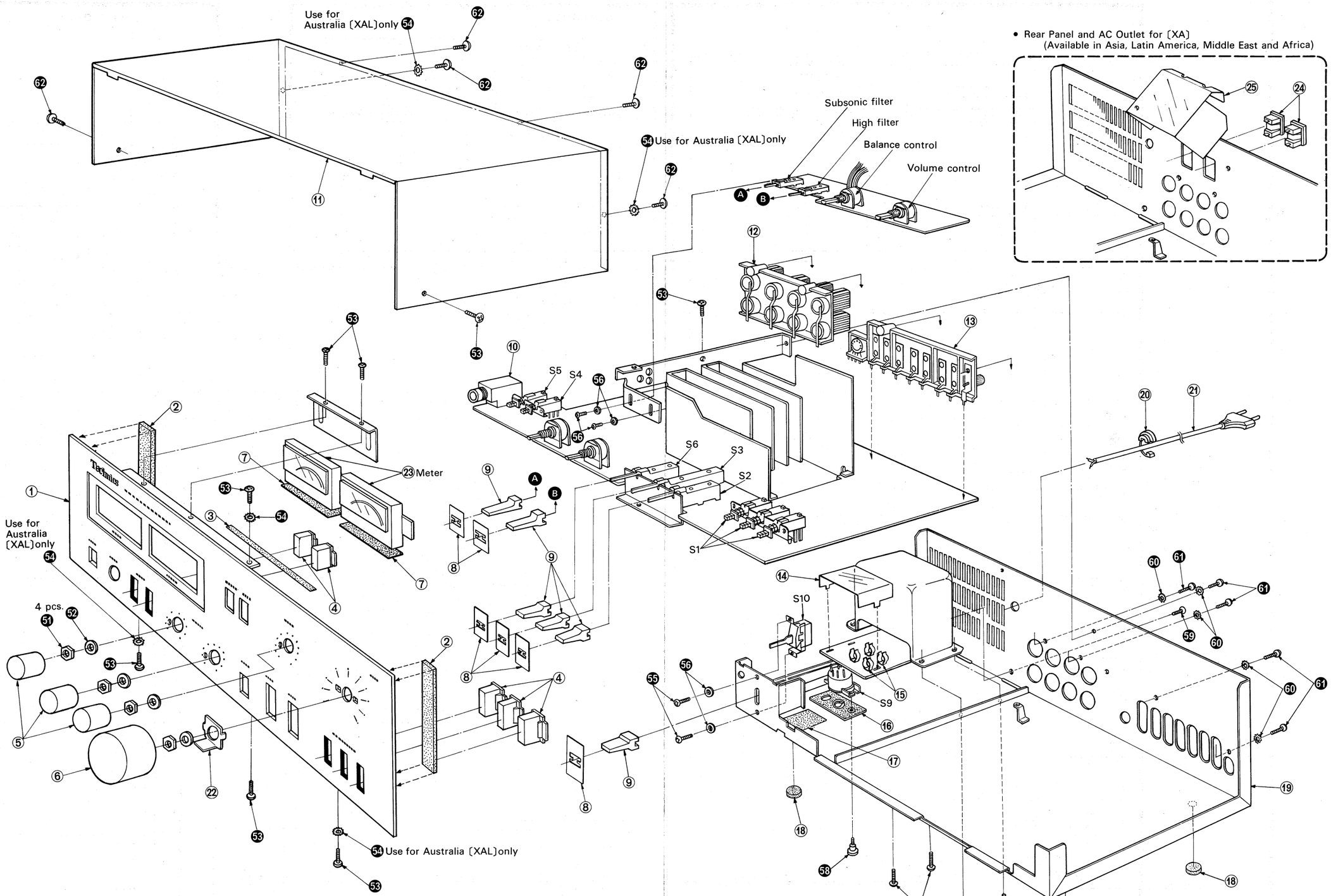
Name & Description
e Shaft
ter Lamp)
tlet (Use for [XA] only)
et (Use for [XA] only)
RS
me, Balance, Bass, Treble)
, ⊕ 3 x 8 (Front Panel)
al Toothed Lock, ϕ3
(Power Switch)
ϕ3
tage Adjuster)
⊕ 4 x 10 (Power Transformer)
al Toothed Lock, ϕ3
, ⊕ 3 x 8
, ⊕ 3 x 8 (Cabinet)
, ⊕ 3 x 8 (Cabinet) Black
AC Power Source
AC Power Source
ag
ag

ok, Printed Matter
ok, Printed Matter

ok, Printed Matter

ean and Scandinavia.

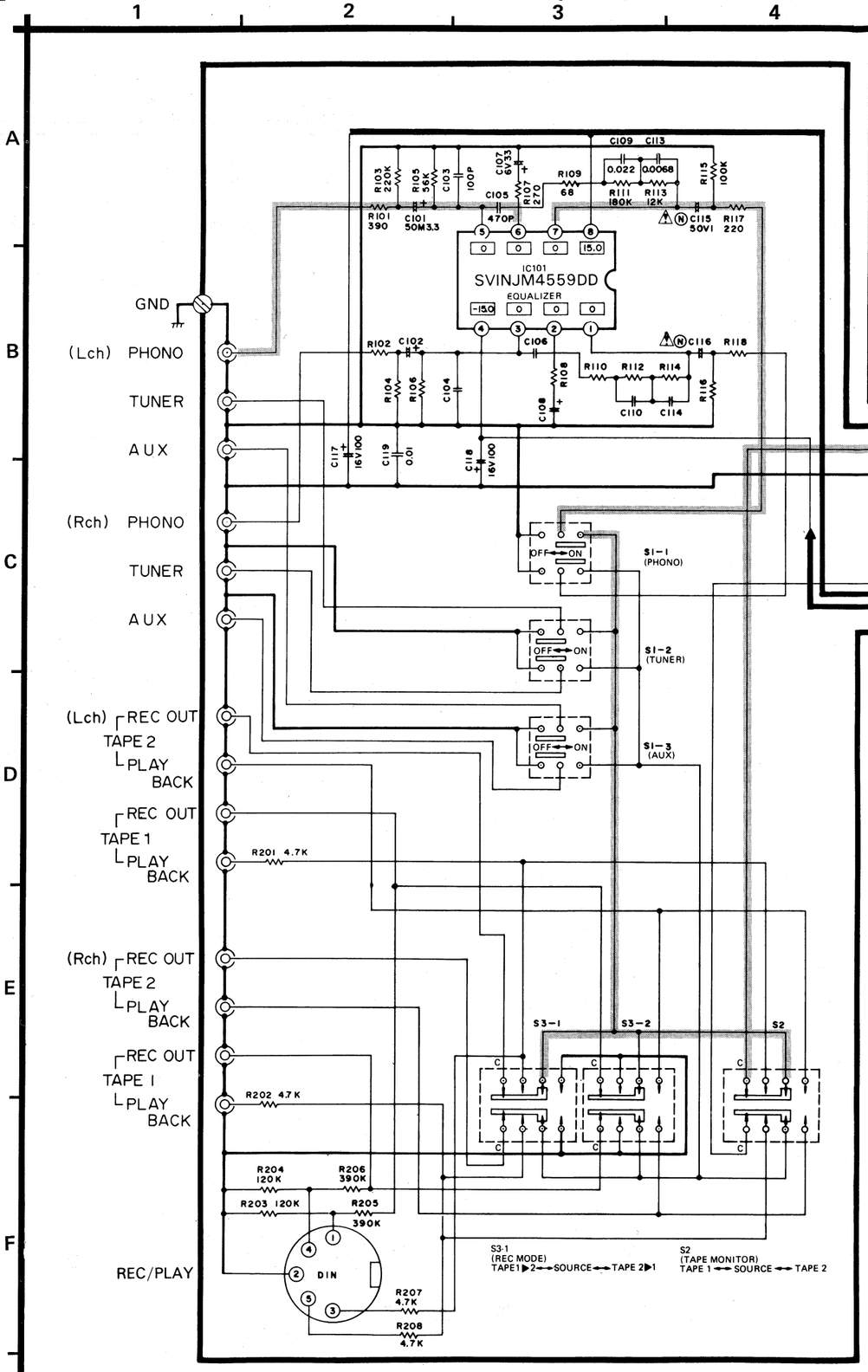
rica, Middle East and

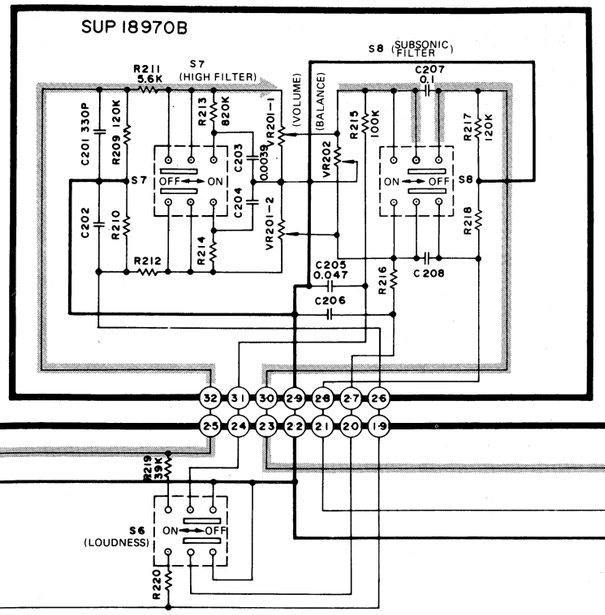


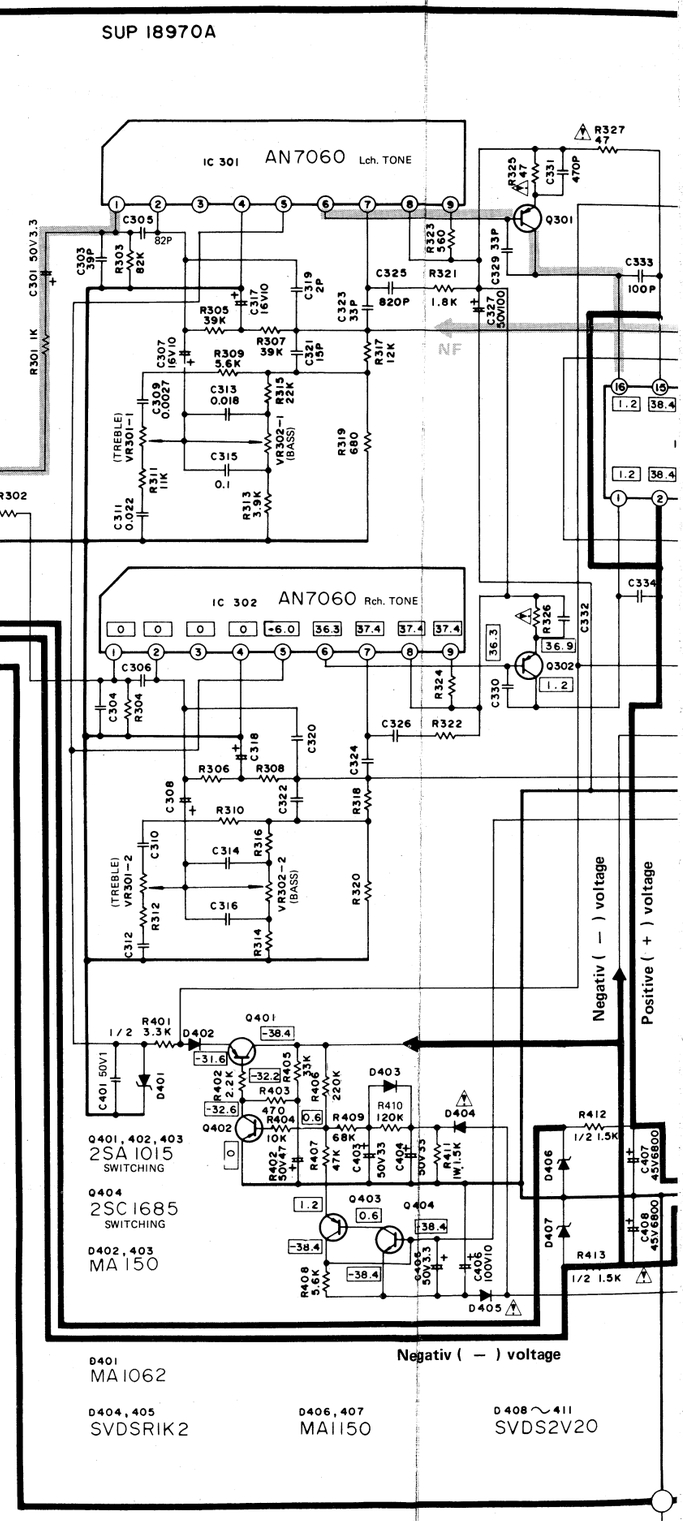
• Rear Panel and AC Outlet for [XA]
(Available in Asia, Latin America, Middle East and Africa)

■ SCHEMATIC DIAGRAM

* This schematic diagram may be modified at any time with the development of new technology.







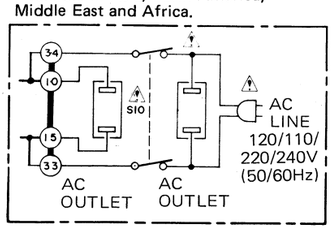
Notes:

1. **S1-1 ~ S1-3:** Input selector switch in **"phono"** position.
   (phono ⟷ tuner ⟷ aux)
2. **S2:** Tape monitor switch in **"source"** position.
   (tape 1 ⟷ source ⟷ tape 2)
3. **S3-1, S3-2:** Recording mode switch in **"source"** position.
   (tape 1 ▶2 ⟷source ⟷ tape 2 ▶1)
4. **S4:** Remote speaker switch in **"off"** position.
5. **S5:** Main speaker switch in **"on"** position.
6. **S6:** Loudness switch in **"off"** position.
7. **S7:** High filter switch in **"off"** position.
8. **S8:** Subsonic filter switch in **"off"** position.
9. **S9:** Voltage adjust switch in **"240V"** position.
   240V ⟷ 220V ⟷ 110V ⟷ 120V
10. **S10:** Power source switch in **"on"** position.
11. ▭ Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
12. ▬▶ Signal lines of left channel
    ▬ Positive (⊕) voltage lines
13. ⚠ indicates that only parts specified by the manufacturer be used for safety.

● Power source circuit for [XA] and [XAL]

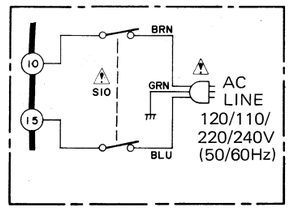
for [XA]

Available in Asia, Latin America, Middle East and Africa.



for [XAL]

Available in Australia.



d at any time with the development of new technology.

4 5 6 7 8 9 10 11 12 13

SUP 18970B

SUP 18970A

Q301, 302
2SA1123
PRE DRIVE

D301, 302
20A90

D303, 304
2-0A99

IC 301 AN7060 Lch. TONE

IC 302 AN7060 Rch. TONE

IC 303 SVISTK2038
2ch. Power AMP.

SPEAKER
Lch
Rch
Lch
Rch

MAIN
REMOTE

HEAD PHONES

SUP 18970D
L ch
R ch

SUP 18970C

S1 (HIGH FILTER)
S8 (SUBSONIC FILTER)
S7
S8
S6 (LOUDNESS)
S5 (MAIN)
S4 (REMOTE)
S2
S9
S10

(VOLUME)
(BALANCE)
(TREBLE) VR301-1
(BASS) VR302-1
(TREBLE) VR301-2
(BASS) VR302-2

Q401, 402, 403
2SA1015
SWITCHING

Q404
2SC1685
SWITCHING

D402, 403
MA150

D401
MA1062

D404, 405
SVDSRIK2

D406, 407
MA1150

D408~411
SVDS2V20

Negative (—) voltage

Positive (+) voltage

Negativ (—) voltage

AC 120/110/220/240V
50/60Hz

Notes:

1. **S1-1 ~ S1-3:** Input selector switch in **"phono"** position.
   (phono ⟷ tuner ⟷ aux)
2. **S2:** Tape monitor switch in **"source"** position.
   (tape 1 ⟷ source ⟷ tape 2)
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8. **S8:** Subsonic filter switch in **"off"** position.
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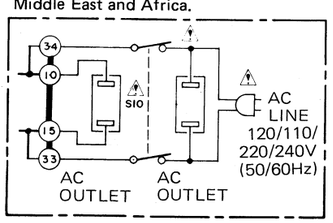
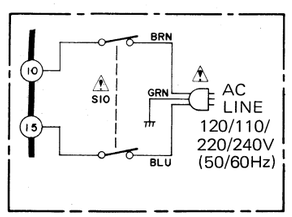
   240V ⟷ 220V ⟷ 110V ⟷ 120V
10. **S10:** Power source switch in **"on"** position.
11. ▭ Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
12. Signal lines of left channel
    Positive (⊕) voltage lines
13. ⚠ indicates that only parts specified by the manufacturer be used for safety.

● **Power source circuit for [XA] and [XAL]**

for [XA]
Available in Asia, Latin America, Middle East and Africa.

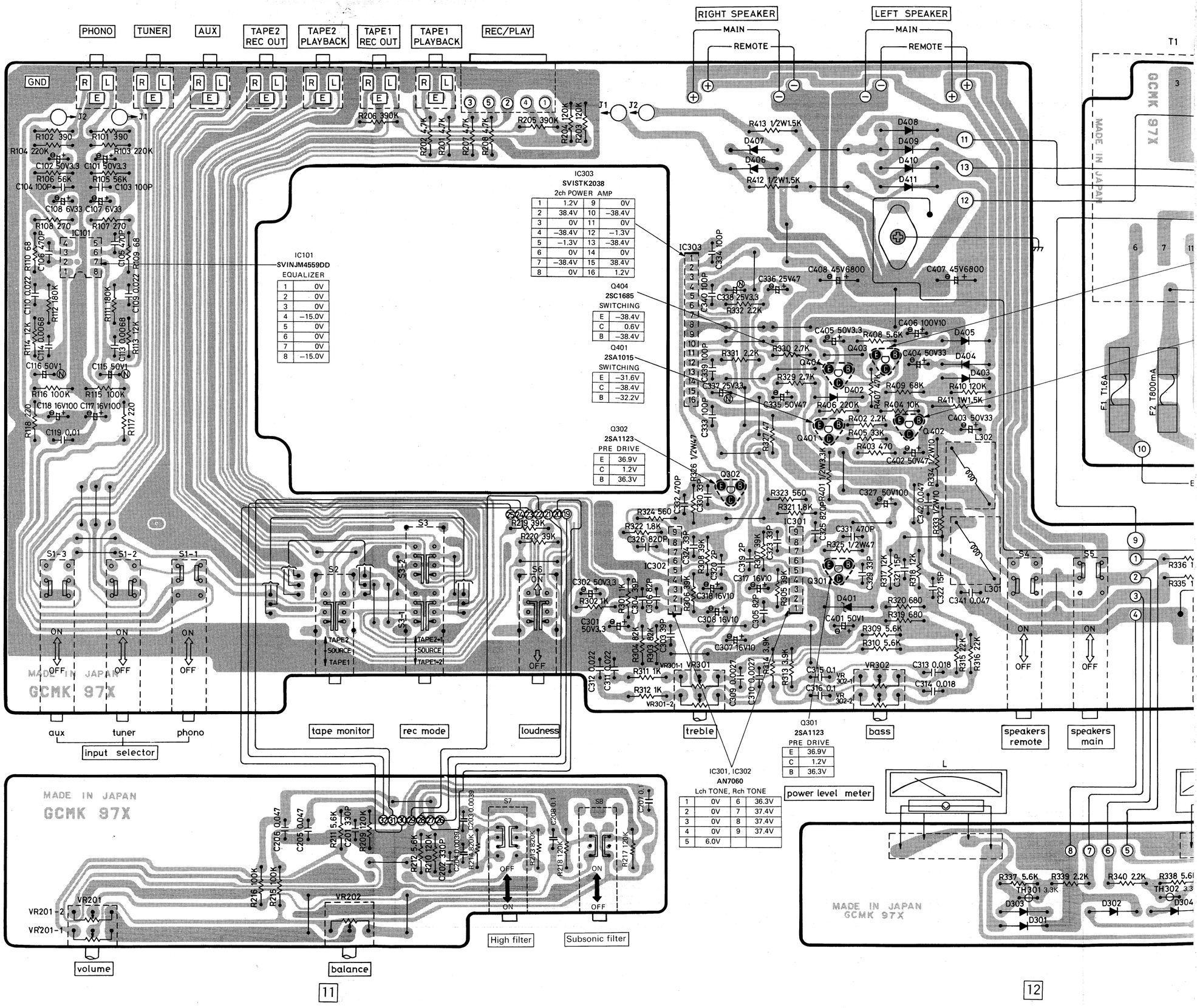


for [XAL]
Available in Australia.



■ PRINTED CIRCUIT BOARD WIRING VIEW

Ground (Earth) lines



11

12

TAPE2 REC OUT
TAPE2 PLAYBACK
TAPE1 REC OUT
TAPE1 PLAYBACK
REC/PLAY
RIGHT SPEAKER
MAIN
REMOTE
LEFT SPEAKER
MAIN
REMOTE
T1 POWER TRANSFORMER
GCMK 97X
MADE IN JAPAN
J1
J2
J3
R206 390K
R205 390K
R204 120K
R203 120K
R202 4.7K
R201 4.7K
R207 4.7K
R208 4.7K
R413 1/2W1.5K
R412 1/2W1.5K
D407
D406
D408
D409
D410
D411
C408 45V6800
C407 45V6800
C406 100V10
C405 50V3.3
C404 50V33
C403 50V33
C402 50V47
C401 50V1
C336 25V47
C338 25V3.3
C332 25V33
C335 50V47
C339 100P
C340 100P
C334 100P
R408 5.6K
R330 2.7K
R331 2.2K
R329 2.7K
R409 68K
R410 120K
R411 1W1.5K
R406 220K
R407 47K
R404 10K
R402 2.2K
R405 33K
R403 470
R401 1/2W3.3K
R327 47
R326 1/2W47
R323 560
R321 1.8K
R324 560
R322 1.8K
R325 1/2W47
C327 50V100
C342 0.047
R334 1/2W10
R333 1/2W10
C331 470P
C325 82P
C326 820P
C332 470P
C330 33P
C324 33P
C323 33P
C319 2P
C320 2P
C318 16V10
C317 16V10
C308 16V10
C307 16V10
C309 0.0027
C310 0.0027
C311 0.022
C312 0.022
C302 50V3.3
C301 50V3.3
C303 33P
C305 82P
C306 82P
R307 39K
R308 39K
R306 39K
R305 39K
R304 82K
R303 82K
R302 1K
R301 1K
R314 3.9K
R313 3.9K
R312 1K
R311 1K
VR301
VR301-1
VR301-2
C315 0.1
C316 0.1
VR302
VR302-1
VR302-2
C313 0.018
C314 0.018
R315 22K
R316 22K
C322 15P
C321 15P
C339 33P
R317 12K
R318 12K
R319 680
R320 680
R309 5.6K
R310 5.6K
C341 0.047
L301
L302
Q301
Q302
Q401
Q402
Q403
Q404
D401
D402
D403
D404
D405
IC303
IC301
IC302
S4
S5
S6
S7
S8
S9
S10
ON
OFF
F1 T1.6A
F2 T800mA
220V
240V
110V
120V
VOLTAGE ADJUSTER
BRN
power source switch
AC LINE
120/110/220/240V
50/60Hz
IC101
SVINJM4559DD
EQUALIZER

1	0V
2	0V
3	0V
4	−15.0V
5	0V
6	0V
7	0V
8	−15.0V

IC303
SVISTK2038
2ch POWER AMP

1	1.2V	9	0V
2	38.4V	10	−38.4V
3	0V	11	0V
4	−38.4V	12	−1.3V
5	−1.3V	13	−38.4V
6	0V	14	0V
7	−38.4V	15	38.4V
8	0V	16	1.2V

Q404
2SC1685
SWITCHING

E	−38.4V
C	0.6V
B	−38.4V

Q401
2SA1015
SWITCHING

E	−31.6V
C	−38.4V
B	−32.2V

Q302
2SA1123
PRE DRIVE

E	36.9V
C	1.2V
B	36.3V

Q403
2SA1015
SWITCHING

E	1.2V
C	−38.4V
B	0.6V

Q402
2SA1015
SWITCHING

E	0V
C	−32.6V
B	0.6V

Q301
2SA1123
PRE DRIVE

E	36.9V
C	1.2V
B	36.3V

IC301, IC302
AN7060
Lch TONE, Rch TONE

1	0V	6	36.3V
2	0V	7	37.4V
3	0V	8	37.4V
4	0V	9	37.4V
5	6.0V		

R219 39K
R220 39K
S2
S3-1
S3-2
TAPE2 SOURCE TAPE1
TAPE2→1 SOURCE TAPE1→2
OFF
tape monitor
rec mode
loudness
treble
bass
speakers remote
speakers main
phones
power level meter
L
R
R336 1W330
R335 1W330
R211 5.6K
R201 330P
R209 120K
R212 5.6K
R210 120K
R202 330P
C206 0.047
C205 0.047
C204 0.0039
C203 0.0039
R213 820K
R214 820K
R216 100K
R215 100K
VR202
balance
C208 0.1
C207 0.1
R218 120K
R217 120K
High filter
Subsonic filter
R337 5.6K
R339 2.2K
R340 2.2K
R338 5.6K
TH301 3.3K
TH302 3.3K
D303
D301
D302
D304
MADE IN JAPAN
GCMK 97X

● Terminal guide of transistors and IC's

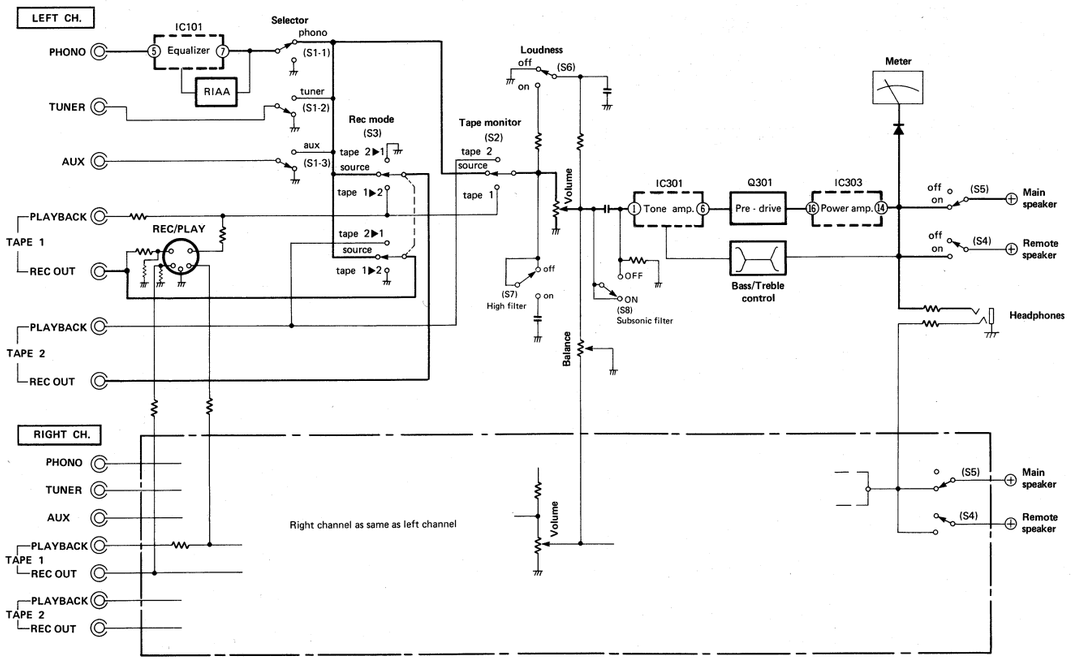
2SA1015, 2SA1123
2SC1685
E C B

AN7060
1 2 3 4 5 6 7 8 9

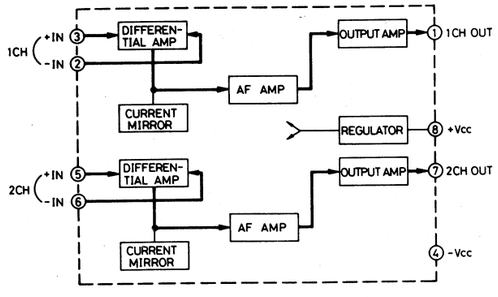
SVINJM4559DD
7 6 5
8
1 2 3 4

SVISTK2038
1
16

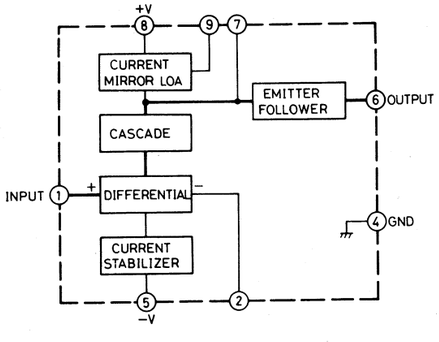
■ BLOCK DIAGRAM



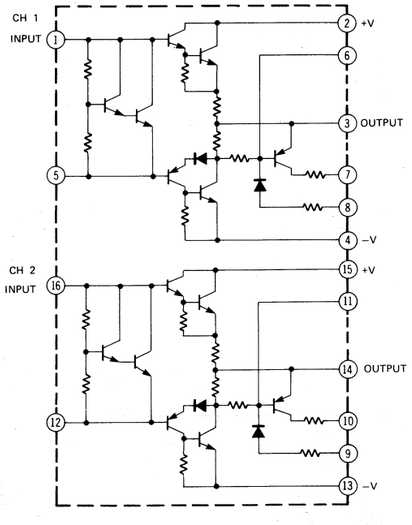
● **Block diagram of IC's**



IC101 (SVINJM4559DD) Equalizer



IC301 (AN7060) Tone amp.



IC303 (SVISTK2038) Power Amp

■ REPLACEMENT PARTS LIST ····· Electric Parts

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC101		SVINJM4559DD	IC, Equalizer Amplifier
IC301, 302		AN7060F	IC, Tone Amplifier
IC303		SVISTK2038	IC, Power Amplifier
TRANSISTORS			
Q301, 302		2SA1123–R	Transistor, Pre Drive Amplifier (Use in ranks R, S or T)
Q401, 402, 403		2SA1015–Y	Transistor, Power ON/OFF Muting (Use in ranks Y or O)
Q404		2SC1685–T	Transistor, Switching (Use in ranks S or T)
DIODES			
D301, 302		**20A90**	Diode, Meter Detector
D303, 304		**2–0A99**	Diode, Meter Detector
D401		**RVDRD6R2EB**	Diode, 6.2V Zener
D402, 403		**MA162A**	Diode, Switching
D404, 405	⚠	**SVDSR1K2**	Rectifier
D406, 407		**MA1150A**	Diode, 15V Zener
D408 ~ 411	⚠	SVDS2V20	Rectifier
COILS and TRANSFORMER			
L301, 302		SLQY15G–3P	Coil, Power Output
T1	⚠	SLT5N347	Transformer, Power Source

Ref. No.		Part No.	Part Name & Description
FUSES			
F1	⚠	XBA2C25TRO	Fuse, T2.5A (250V)
F2	⚠	XBA2C12TRO	Fuse, T1.25A (250V)
SWITCHES			
S1		SSH379	Switch, Input Selector
S2		SSL169	Switch, Tape Monitor
S3		SSL171	Switch, Recording Mode
S4, 5		SSH277	Switch, Speakers
S6, 7, 8		SSL167	Switch, Loudness
S9	⚠	ESE37200	Switch, Voltage Adjuster
S10	⚠	ESL21227S	Switch, Power Source
VARIABLE RESISTORS			
VR201		EWJFHA066BF5	Volume Control, 250kΩ (B)
VR202		EVHHMA531G25	Balance Control, 200kΩ (G)
VR301		EWJFCO066C15	Treble Control, 100kΩ (C)
VR302		EWJFCY066530	Bass Control
THERMISTORS			
TH301, 302		ERTD2ZHL332S	Thermistor, 3.3kΩ

Ref. No.		Part No.	Part Name & Description
RESISTORS			
R101, 102		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ±5%
R103, 104		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ±5%
R105, 106		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ±5%
R107, 108		**ERD25FJ271**	Carbon, 270Ω, 1/4W, ±5%
R109, 110		**ERD25FJ680**	Carbon, 68Ω, 1/4W, ±5%
R111, 112		**ERD25TJ184**	Carbon, 180kΩ, 1/4W, ±5%
R113, 114		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ±5%
R115, 116		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%
R117, 118		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ±5%
R201, 202		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ±5%
R203, 204		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%
R205, 206		**ERD25TJ394**	Carbon, 390kΩ, 1/4W, ±5%
R207, 208		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ±5%
R209, 210		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%
R211, 212		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ±5%
R213, 214		**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ±5%
R215, 216		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%
R217, 218		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%
R219, 220		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ±5%
R301, 302		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ±5%
R303, 304		**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ±5%
R305, 306		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ±5%
R307, 308		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ±5%
R309, 310		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ±5%
R311, 312		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ±5%
R313, 314		**ERD25FJ392**	Carbon, 3.9kΩ, 1/4W, ±5%
R315, 316		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ±5%
R317, 318		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ±5%
R319, 320		**ERD25FJ681**	Carbon, 680Ω, 1/4W, ±5%
R321, 322		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ±5%
R323, 324		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ±5%
R325, 326	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ±5%
R327	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ±5%
R329, 330		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ±5%
R331, 332		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ±5%
R333, 334	⚠	**ERD50FJ100**	Carbon, 10Ω, 1/2W, ±5%
R335, 336		**ERG1ANJ331**	Metal Oxide, 330Ω, 1W, ±5%
R337, 338		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ±5%
R339, 340		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ±5%
R401		**ERD50FJ332**	Carbon, 3.3kΩ, 1/2W, ±5%
R402		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ±5%
R403		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ±5%
R404		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ±5%
R405		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%
R406		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ±5%
R407		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ±5%

Ref. No.		Part No.	Part Name & Description
R408		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ±5%
R409		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ±5%
R410		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%
R411		**ERG1ANJ152**	Metal Oxide, 1.5kΩ, 1W, ±5%
R412, 413		**ERD50FJ152**	Carbon, 1.5kΩ, 1/2W, ±5%
CAPACITORS			
C101, 102		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C103, 104		ECCD1H101K	Ceramic, 100pF, 50V, ±10%
C105, 106		ECKD1H471KB	Ceramic, 470pF, 50V, ±10%
C107, 108		**ECEA1CS330**	Electrolytic, 33μF, 16V
C109, 110		ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%
C113, 114		ECQM1H682KZ	Polyester, 0.0068μF, 50V, ±10%
C115, 116	⚠	**ECEA50N1**	Non-Polar Electrolytic, 1μF, 50V
C117, 118		**ECEA1ES101**	Electrolytic, 100μF, 25V
C119		ECKD1H103ZF	Ceramic, 0.01μF, 50V, +80% −20%
C201, 202		ECKD1H331KB	Ceramic, 330pF, 50V, ±10%
C203, 204		ECQM1H392KZ	Polyester, 0.0039μF, 50V, ±10%
C205, 206		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C207, 208		ECQM1H104KZ	Polyester 0.1μF, 50V, ±10%
C301, 302		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C303, 304		ECCD1H390K	Ceramic, 39pF, 50V, ±10%
C305, 306		ECCD1H820K	Ceramic, 82pF, 50V, ±10%
C307, 308		**ECEA1HS100**	Electrolytic, 10μF, 50V
C309, 310		ECQM1H272KZ	Polyester, 0.0027μF, 50V, ±10%
C311, 312		ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%
C313, 314		ECQM1H183KZ	Polyester, 0.018μF, 50V, ±10%
C315, 316		ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%
C317, 318		**ECEA1HS100**	Electrolytic, 10μF, 50V
C319, 320		ECCD1H020C	Ceramic, 2pF, 50V, ±0.25pF
C321, 322		ECCD1H150K	Ceramic, 15pF, 50V, ±10%
C323, 324		ECCD1H330K	Ceramic, 33pF, 50V, ±10%
C325, 326		ECKD1H821KB	Ceramic, 820pF, 50V, ±10%
C327		**ECEA1HS101**	Electrolytic, 100μF, 50V
C329, 330		ECCD1H330K	Ceramic, 33pF, 50V, ±10%
C331, 332		ECKD1H471KB	Ceramic, 470pF, 50V, ±10%
C333, 334		ECCD1H101K	Ceramic, 100pF, 50V, ±10%
C335, 336		**ECEA1HS470**	Electrolytic, 47μF, 50V
C337, 338	⚠	**ECEA25N3R3**	Non-Polar Electrolytic, 3.3μF, 25V
C339, 340		ECCD1H101K	Ceramic, 100pF, 50V, ±10%
C341, 342		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C401		**ECEA50Z1**	Electrolytic, 1μF, 50V
C402		**ECEA1HS470**	Electrolytic, 47μF, 50V
C403, 404		**ECEA1JS330**	Electrolytic, 33μF, 63V
C405		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C406		**ECEA2AS100**	Electrolytic, 10μF, 100V
C407, 408		ECETS45V682U	Electrolytic, 6800μF, 45V